

**ACTION DESCRIPTION MEMORANDUM**  
**FOR**  
**CLOSURE OF SELECTED UNDERGROUND STORAGE TANKS**

EG&G Rocky Flats, Inc.

Operating Contractor For

U. S. Department of Energy  
Rocky Flats Plant

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**ADMIN RECORD**

A-SW 001096

# ACTION DESCRIPTION MEMORANDUM FOR CLOSURE OF SELECTED UNDERGROUND STORAGE TANKS

## SECTION 1.0

### PROPOSED ACTION

The purpose of this Action Description Memorandum (ADM) is to comply with DOE Orders 5440.1C and AL 5440.1B, "Implementation of the National Environmental Policy Act (NEPA)" which require preparation of an ADM, and 5481.1B "Safety Analysis and Review System". This order requires that a safety analysis be "initiated during the earliest phases of the life cycle of the DOE operation to facilitate early hazard identification and their elimination or control".

The proposed action includes the investigation and subsequent closure of eight underground storage tanks (UST) that will be closed in accordance with the U.S. Environmental Protection Agency (EPA) regulations 40 CFR Part 280. The work will be conducted in accordance with the requirements of Subpart G of Subtitle I of RCRA covering "Out-of-Service UST Systems and Closure". Table 1-1 provides a summary of certain information about the USTs subject to the proposed action, some of which have been removed and others of which are out-of-service (O.O.S.) but are still in the ground.

#### 1.1     LOCATION OF THE ACTION

Each of the subject USTs is located wholly within the Rocky Flats Plant site. The plant is located in northern Jefferson County, approximately 16 miles northwest of downtown Denver, Colorado. Plate 1 illustrates the physical location of the subject USTs. None of the existing or former USTs is located within a Solid Waste Management Unit (SWMU) with the exception of Tank ID number 991SE. This UST, which contained petroleum product prior to its removal in 1986, was located within SWMU 173.

#### 1.2     DESCRIPTION OF THE ACTION

Closure of the tanks will include soil sampling to determine if the tanks have leaked, removal of tank contents where appropriate, the physical removal of the tanks themselves, decontamination of the tanks and soils as necessary, puncturing or cutting up the tanks, and remediation of any contaminated soils if necessary. The closure process will begin with a drilling program designed to determine whether leakage occurred at sites where tanks have been removed and at locations where out-of-service tanks are still in place. Vertical and slant drilling will be employed with laboratory analysis of composite samples of the bottom 5 feet of the soil core taken in each case. Real time field sampling will be conducted using an HNu or OVA (organic vapor analysis instruments) as appropriate to provide further indications regarding the presence of volatile organic compounds. This real time field program limits the need to conduct subsequent laboratory analyses on those core samples which show the presence of volatile organic compounds.

TABLE 1-1  
FACILITIES DESCRIPTION  
ROCKY FLATS UST CLOSURE PROGRAM

Tank ID	Capacity (gallons)	Contents	Material of Construction	Status	Substance Remaining
771SE	3000	Petroleum Products	Steel	O.O.S. 1972	1890 gal.
776S* 778N*	* *	Petroleum Products	* *	Removed 1985	
991SE	* *	Petroleum Products	* *	Removed 1986	
881A-NE	1000	Petroleum Products	Steel	O.O.S.1976	Residual
881S	2100	Petroleum Products	Steel	O.O.S.	Residual/Concrete
883N	500	Petroleum Products	Steel	O.O.S. 1979	Residual/Sand
730CT	5000	Carbon Tetrachloride	Steel	Removed 1985/86	
111E	* *	Petroleum Products	* *	Removed 1978	

\* Same UST

\*\* Capacity and material of construction information unavailable.

The initial sampling program is designed to expedite the implementation of corrective action in the event that a leak has occurred. In the absence of the need for corrective action, the project will move promptly to final closure in accordance with Subpart G of Subtitle I of RCRA. Tanks will be physically removed from the ground after removal of any residual material. Residual material, as well as the tanks themselves, will then be stored, treated and/or disposed of. The tanks will be rendered not suitable for reuse by puncturing or cutting and, in the absence of contamination, can be scrapped locally. This process will be submitted to the Colorado Department of Health. The report typically contains the laboratory results from sampling, photographs of activities conducted at the site with emphasis on the excavation zone and the conditions of the tanks, certificates of destruction for the tanks, and manifests for any materials shipped off-site.

In the event that corrective action is required, all activities will be conducted in accordance with Subpart E, "Release Reporting, Investigation and Confirmation", and Subpart F, "Release Response and Corrective Action for UST Systems Containing Petroleum or Hazardous Substances". Federal regulations outline a formal program for corrective action at such sites which requires considerable regulatory interface. The process involves a program of plume characterization to determine the extent of contaminated soils and ground water. Alternative technologies for remediation will be evaluated for subsequent implementation. This process is subject to ongoing regulatory review as well as a public review process. In the event that corrective action is required at any of the locations, tank closure would be an active component of the remediation process.

### 1.3 CONSTRUCTION PLAN

The initial sampling program will be accomplished utilizing vertical and slant drilling for the acquisition of core samples for subsequent lab analysis. Tank closure will require the use of earth moving equipment and gear necessary to render the USTs unsuitable for reuse. The tanks will either be punctured or cut into pieces using hydraulic shears. Where contamination is present, site activities will be defined by the nature of the selected remediation process. These could range from in-situ remediation technologies requiring little or no surface disturbance to soil excavation and removal. Final selection of the appropriate technology will be based on a cost/benefit analysis of each alternative. For example, in-situ treatment may be appropriate for the remediation of petroleum product spills but would be inappropriate if elevated radionuclide levels are present.

### 1.4 BACKGROUND

Closure is required for out-of-service tanks in accordance with Subpart G of Subtitle I. With regard to the previously-removed USTs, Subpart 280.73 requires that the owner/operator assess the excavation zone and close the site formally in compliance with Subpart G. The out-of-service tanks which have been temporarily closed for more than 12 months must be permanently closed as none of them meets the performance requirements of Subpart B, "UST Systems: Design, Construction, Installation and Notification". The closure process requires notification of the implementing agency at least 30 days prior to permanent closure. In addition, a site assessment is required in accordance with Subpart 280.72, "Assessing the Site at Closure or Change in Service."

The closure process will be accomplished through two separate actions. Work will initially focus on an investigation program to establish whether product loss has occurred during the operation of any of the subject USTs. This will be followed by formal closure documented in a closure report required by federal and state regulations.

Four of the subject tanks were removed during 1978-86. Investigation of the excavated area will establish whether clean closure was achieved in each of these instances. If this is the case, no further action will be required at these sites and the results will be included in the overall closure report. Four of the subject USTs are out-of-service but remain in the ground. Each of the tanks is of steel construction and they range in size from 500 to 5000 gallons. Three of the tanks were taken out of service between 1972 and 1979. The out-of-service date of the fourth tank is not known. Seven of the tanks formerly contained petroleum product. The eighth was used to store carbon tetrachloride. In all but one instance, only residual materials, sand and or concrete remain in the USTs. Records indicate that the 3000-gallon petroleum product tank taken out of service in 1972 may contain roughly 1,890 gallons of petroleum product.

Table 1-1 provides a synopsis of available information regarding these tanks. During a recent site visit to confirm former and current UST locations with respect to Solid Waste Management Units (SWMU), two changes were made to the historical record. It was established that Tank ID numbers 776S and 778N represent the same petroleum product tank removed in 1985. It was also established that Tank ID number 730CT was removed in 1985 or 1986.

#### 1.5 NEED FOR THE ACTION

This program is being driven strictly by regulatory requirements for the closure of out-of-service tanks. It will result in facility improvement through the removal of out-of-service installations which can negatively impact future site construction through decreased soil stability. In the event that a remediation program is required, an obvious improvement in environment and safety will result.

#### 1.6 ALTERNATIVES TO THE PROPOSED ACTION

The "No Action" alternative is unacceptable as it would result in a failure to comply with Subtitle I of RCRA. The only other alternative is closure in place. This alternative requires that the tanks be thoroughly cleaned and filled with an inert substance such as sand or concrete. This approach can lead to future construction hazards in some instances and it does not completely eliminate the environmental liability. The implementing agency retains the authority to require retroactive site assessments if the future discovery of contamination in the area could possibly be traced back to the previously closed USTs. The selected alternative eliminates the risk by removing the USTs and fully documenting all concerns relative to previous contamination.

## SECTION 2

### POTENTIAL ENVIRONMENTAL AND SAFETY ISSUES

Closure of the subject USTs will assure regulatory compliance and eliminate any existing contamination problems resulting from the previous operation of these facilities. This will be achieved through a program of corrective action, if necessary, during the closure process.

EG&G Rocky Flats will notify CDH at least 30 days prior to the initiation of closure activities. The closure process involves emptying, cleaning and removal of all liquids and accumulated sludge from the tanks prior to off-site disposal. A site assessment is an integral component of the closure process. The DOE proposes to complete such closure in strict compliance with applicable federal, state and local regulatory requirements.

Selection of tank removal to facilitate the closure process greatly simplifies the necessary site assessment program. When a tank is being physically removed, visual inspection of the tank and the excavation zone, together with the organic vapor instrument readings, provide the majority of the information necessary to determine if corrective action is required. Visual inspection, volatile organic instrument measurements (OVA or HNu), and soil and/or ground water sampling will be used as the basis for determining the presence of previous leakage. Head space sampling using either an OVA or HNu meter will be used for on-site determination of the presence of hydrocarbons. If the presence of contaminated soils and/or ground water is confirmed by laboratory sample analysis, CDH will be notified within 24 hours.

Contaminated soils will be transferred to an approved storage, treatment or disposal facility. The principal environmental and safety concerns in the closure process are related to the physical removal of the four tanks still in the ground. While only one tank may contain residual petroleum product, care will be taken in cleaning each of the tanks to avoid the possibility of explosion or impacts to worker safety due to elevated concentrations of hydrocarbons. In addition, where residual petroleum product remains, spillage can occur if the tanks are not properly drained and cleaned prior to removal. As part of the closure effort, all product and initial rinse material from the tanks will be removed for subsequent material recycling/disposal. This will include the initial water flush of the piping and rinsing of the tank to facilitate tank handling and product removal. All material will be placed in 55-gallon, DOT-approved drums and staged on site. A sample will be collected from the staged material and analyzed for offsite storage, treatment or disposal alternatives. Following analysis, the drummed material will be scheduled for recycling/disposal and transported off-site by licensed carrier for final disposition. The entire process will be fully documented for presentation in the final closure report.

Due to the nature of the site, EG&G will provide screening of samples to ensure that 1) no radioactive materials have been inadvertently stored in any of the subject facilities, and 2) the facilities are not in a location potentially impacted by contaminant plumes from other sources. Radiation safety and confinement as well as nuclear criticality are not expected to be factors in the closure action due to the nature of the facilities to be closed as well as their plant site location. In addition, no unusual hazards associated with explosion, fire, high voltage or current, or mechanical hazards are anticipated. A modest risk of explosion and fire is associated

with the tank cleaning and removal process as indicated earlier. However, this will be ameliorated through the use of standard tank cleaning and removal techniques developed in the industry by such groups as the American Petroleum Institute (API), the National Fire Protection Association and the Petroleum Equipment Institute. API 1604, for example, "Recommended Practices for Abandonment or Removal of Used Underground Service Station Tanks," discusses cleaning, flushing and inerting requirements for USTs containing petroleum products.

Petroleum products were stored in seven of the eight subject tanks. Carbon tetrachloride was contained in the 5000-gallon tank removed in 1985 or 1986. Any hazardous waste that may be generated as a result of this action will be handled in accordance with provisions of the Resource Conservation and Recovery Act (RCRA) as outlined in amended RCRA Part B permit applications submitted to the Colorado Department of Health in March 1990. None of the tanks was used for storage of waste materials. It is anticipated that this action will be conducted completely under the purview of Subtitle I of RCRA.

Finally, the Maximum Credible Accidents and risk to the public as postulated in the Final Environmental Impact Statement for the Rocky Flats Plant site (DOE/EIS-0064) are not impacted (or significantly increased) by this project. There is no significant increase in the probability of occurrences, consequences or risk of postulated accident scenarios as a result of this action. Hence, there is no unreviewed safety question as defined in DOE Order 5481.1B, "Safety Analysis and Review System."

## SECTION 3.0

### REGULATORY COMPLIANCE

#### 3.1 NEPA-SPECIFIC CONSIDERATIONS

The proposed action is the closure of underground storage tanks previously taken out of operation within the Rocky Flats plant site. There will be no adverse effect on:

- o Wetlands
- o Historical, Cultural or Archaeological Resources
- o Rare or Endangered Species

Consultations with the United States Fish and Wildlife Service (USFWS) and the US Army Corps of Engineers were conducted in the spring of 1988. The general location of wetlands on plant site were characterized and it has been determined subsequently that the proposed action is not located in, nor in a position to have an effect upon, these wetlands.

In a letter to A.E. Whiteman, Manager of the Department of Energy of Energy Rocky Flats Area Office, the Colorado State Historical Preservation Officer, Barbara Sudler, stated that "There will be no effect to significant cultural resources by further development within Rocky Flats Plant, provided [two specified sites] are avoided." These sites were identified in *An Archeological and Historical Survey of Selected Parcels Within the Department of Energy, Rocky Flats Plant*, and will not be affected by the proposed action.

The USFWS has identified the bald eagle and the black-footed ferret as endangered species of interest at the plant. This action will not impact bald eagle habitat. Surveys for black-footed ferrets would be required only if prairie dog colonies would be affected. The proposed action is not in an area of current or potential colonization by prairie dogs.

### 3.2 OTHER REGULATORY CONSIDERATIONS

The proposed action is necessary to comply with Resource Conservation and Recovery Act (RCRA) regulations. All portions of the action will comply with Subtitle I of RCRA (40 CFR Subpart G of Subtitle I) effective December 22, 1988, establishing requirements at the federal level for closure of USTs. EG&G will notify the CDH at least 30 days prior to initiation of closure activities. In addition, the local fire department will be notified in accordance with regulatory requirements. In the event that corrective action is required, EG&G will comply with requirements of 40 CFR Sections E and F of Subtitle I which govern the release, reporting and corrective action processes. Finally, all closure activities will be conducted strictly within the constraints of an effective Health and Safety program. The closure team will develop a Health and Safety Plan for closure activities for each of the eight UST locations.

One of the USTs (Tank ID number 991SE), excavated in 1986, was located in SWMU 173. This SWMU is characterized as the radioactive site 900 area and is included within Operable Unit No. 5. If soil borings taken within the excavation area are clean, the formal tank closure process can be completed expeditiously, fulfilling all requirements of RCRA Subtitle I. A site is considered clean if total petroleum hydrocarbon (TPH) concentrations are below 100 ppm. Analysis will also be conducted for BTXE (benzene, toluene, xylene and ethylbenzene). However, the less mobile hydrocarbons, such as those detected in a TPH analysis, usually give a more accurate indication of the actual level of contamination for spills of petroleum product. The lighter fractions (BTXE) are more mobile and will migrate or dissipate from the main body of contamination. These fractions take on greater significance if a site fails the TPH screen. For these reasons, soils are analyzed for both BTXE and TPH as indicators of contamination.

If the Tank 991SE site fails the TPH screen, investigation of the extent of contamination should be conducted as part of a more comprehensive program to characterize the nature and extent of contamination at SWMU 173.

## SECTION 4.0

### ADDITIONAL DOCUMENTATION

This project involves only hazards of a type and magnitude routinely encountered and accepted by the public and no additional safety analysis is required (per DOE Order 5481.1B "Safety Analysis and Review System").



## SECTION 5.0

### FISCAL AND SCHEDULE INFORMATION

The total estimated cost of this action is \$110,000 in the absence of the need for corrective action. The first year of funding is planned for Fiscal Year 1990 with completion estimated by December 31, 1990.

In the event that the corrective action process is triggered, national UST experience indicates that the majority of spills are confined to soils immediately adjacent to the tanks. In such cases, the corrective action process can be accomplished for \$20-30,000. However, in the event that the contamination has compromised ground water resources, cleanup costs can escalate to as much as \$100,000-\$300,000. Once again, given the out-of-service dates, size, location and nature of previously-stored materials, it is not anticipated that a substantial corrective active will be triggered by the closure process.